

DISCUSSION OF THE AMENDMENT

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2006/0199913, when discussing the application description, both in this section and in the Remarks section, *infra*, rather than to page and line of the specification as filed.

Claim 1 has been amended by inserting that the reaction is carried out in the presence or absence of at least one polyfunctional compound, as supported at paragraph [0047], and that when the polyfunctional compound is a tricarboxylic acid, it is limited as recited in the claim, as supported at paragraph [0050], all of the specification.

No new matter is believed to have been added by the above amendment. Claims 1-22 remain pending in the application.

REMARKS

The rejections of Claims 1-3, 5-9 and 11-12 under 35 U.S.C. § 102(b) as anticipated by, and of Claim 4 under 35 U.S.C. § 103(a) as unpatentable over, Park et al, the article at *J. Am. Chem. Soc.* **2001**, 123, 2460-2461 (Park et al),<sup>1</sup> are respectfully traversed.

As the title of Park et al states, it is drawn to cationic hyperbranched poly(amino esters) as a class of DNA condensing molecules with a cationic surface, biodegradable three-dimensional structure, and tertiary amine groups in the interior. In Scheme 1 therein, Park et al discloses the polymerization reaction of a monomer **1**, bearing one hydroxyl group, two methyl ester groups, and one tertiary amine group in the center of the molecule with a compound of formula **3**, which is described as an ammonia core starburst PAMAM dendrimer -0.5 generation as a core moiety, in the presence of  $\text{Al}(\text{O}^i\text{Pr})_3$  as a catalyst, to form a polymer **4**, which is further functionalized with amino groups to form polymer **5**.

Park et al neither discloses nor suggests the presently-claimed invention. The core compound of formula **3** of Park et al, a required component therein, is outside the scope of the presently-recited at least one polyfunctional compound of above-amended Claim 1. There is neither disclosure nor suggestion therein to replace or modify it. Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejection of Claim 10 under 35 U.S.C. § 103(a) as unpatentable over Park et al in view of the article at *Macromol. Rapid Commun.* **2002**, 23, 292-296 (Frey et al), is respectfully traversed. The Examiner relies on Frey et al for a disclosure of enzyme catalysts for synthesizing hyperbranched polyesters. However, even if an enzyme were used as the catalyst in Park et al, the result would still not be the presently-claimed invention. Accordingly, it is respectfully requested that this rejection be withdrawn.

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<sup>1</sup> It is conventional to name a document authored by more than one person using the first-named person. However, to be consistent with the Examiner's methodology, we refer to such documents by the last named author, i.e., Park et al.

The rejection of Claims 13-22 under 35 U.S.C. § 103(a) as unpatentable over Park et al in view of WO 02/36695, using US 7,151,153 as a translation (Bruchmann et al), is respectfully traversed.

The disclosures and deficiencies in Park et al have been discussed above. Bruchmann et al does not cure these deficiencies.

Bruchmann et al discloses hyperbranched polyurethanes for the preparation of printing inks and printing varnishes (Abstract). Park et al, as discussed above, is directed to a DNA condensing molecule. Park et al discloses that DNA condensing molecules have been reported as having an ability to transfect mammalian cells (the third paragraph of the left column of page 2460). As discussed above, compounds **1** and **3** polymerize to form a polymer having structure **4**. Park et al discloses further that for polymer **4** to be able to condense negatively charged DNA, the surface of the polymer should be functionalized with amine groups that are protonated at near neutral pH (sentence bridging the left and right columns of page 2461). Such a functionalized polymer is polymer **5** therein. Park et al concludes that the polymer showed efficient transfection and minimal toxicity, which would make the polymer a promising nonviral gene carrier (last sentence of Park et al).

The only commonality between Park et al and Bruchmann et al is they are both drawn to hyperbranched polymers. But there is no suggestion that the printing ink and printing varnish capability of Bruchmann et al's hyperbranched polyurethanes would be available in other hyperbranched polymers having no resemblance to hyperbranched polyurethanes. Nor would there be any reason for the purposes of Park et al to further react any of their hyperbranched polymers with either a hydrophilic compound or a hydrophobic alcohol, or with at least one alcohol or amine having an ethylenically unsaturated double bond.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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